



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE United States Patent and Trademark Office Address: COMMISSIONER OF PATENTS AND TRADEMARKS Washington, D.C. 20231 www.usplo.gov

DATE MAILED: 08/26/2002

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. | |
|--|----------------|----------------------|---------------------|------------------|--|
| 08/992,767 | 12/17/1997 | HIROAKI YOKOYAMA | NEC-19654 | 4197 | |
| · | 590 08/26/2002 | ODOSOMANI | | | |
| HAYES SOLOWAY HENNESSEY GROSSMAN & HAGE 175 CANAL STREET | | | EXAMINER | | |
| | | | WILLE, DOUGLAS A | | |
| MANCHESTE | CR, NH 03101 | | ART UNIT | PAPER NUMBER | |
| | | | 2814 | - | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| Application No. Bessay 2,767 VOKOYAMA, HYGOKI Examiner Art Unit 2814 | | | | | | | | |
|--|---|---|------------------------------------|--|-----------------|--|--|--|
| Examiner Douglas A Wille 2814 | • | | Application No. | Applicant(s) | | | | |
| Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MALLING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MALLING DATE OF THIS COMMUNICATION. • Interesting the serval that the provisions of 37 CPR 1.136(g). In the event, however, may a reply be timely filled state 314, 69 MONTHS from the minding date of this communications, the state of the provisions of the 100 Months and 100 Months for the provisions of 37 CPR 1.136(g). • If the period for reply specified above is here the bit him (20) starp, a reply date of the contraction of the 100 Months for the malling date of the communication. • If the period for reply specified above is here the thin the thin the state of the state and the period of the communication. • If the period for reply specified shows in the thin the state of the state of the communication of the 100 Months and 100 Months for the malling date of this communication. • Paths to reply which we set or endeather and the period of the communication, even if timely filled, may reduce any Status • If the period for the state than these months after the malling date of this communication, even if timely filled, may reduce any Status • If the action is FINAL. • If the action is in condition for allowance except for formal matters, prosecution as to the merits is closed in a coordance with the practice under Ex parte Quayle, 1935 c.D. 11, 453 o.G. 213. • If the above claim(s) is/are allowed. • If a drawing (s) filled on | | | 08/992,767 | YOKOYAMA, H | ROAKI — | | | |
| - The MALING DATE of this communication appears on the cover sheet with the correspondence address - Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Educations of the many be available under the provisions of 3 CFR 1.136(a). In no event, however, may a reply be timely filled after 60.00 MONTHS from the mining data in an interest of 3 CFR 1.136(a). In no event, however, may a reply be timely filled after 60.00 MONTHS from the maining data of the communication of the provision of the communication of the provision of the communication of the provision of the communication | | | Examiner | Art Unit | | | | |
| A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MALING DATE OF THIS COMMUNICATION. and EXX (8) MONTHS from the mailing date of this communication. If the period from the period source in teach that his communication. If the period from the period source in teach that his communication. If the period from the period source in teach that his communication. If the period from the period source in teach that his cannot be a possible of the period of the communication. If the period from significant to the period of the period of the period period from the period source in the period period period from the period source in the period period to the period period period from the period source in the period p | | | | | ddraac | | | |
| THE MAILING DATE OF THIS COMMUNICATION. Editaristics of time may be available under the proteins of 37 cPt. 135(a). In no event, however, may a reply be limely filed other SX (6) MONTHS from the mailing date of this communication. It NO parked for reply inspired above, the maintaine states of pello within the statistory pellows the statisto | | NG DATE of this communication appo | ears on the cover sheet with the c | orrespondence ad | duress | | | |
| 2a) This action is FINAL. 2b) This action is non-final. 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) Claim(s) 11-28 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration. 5) Claim(s) is/are allowed. 6) Claim(s) is/are rejected. 7) Claim(s) are subject to restriction and/or election requirement. Application Papers 9) The specification is objected to by the Examiner. 10 The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) The proposed drawing correction filed on is: a) approved by disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action. 12) The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). *See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) Attachment(s) PTO-143) Paper No(s) | A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication. If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely. If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication. Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b). | | | | | | | |
| Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213. Disposition of Claims Plant Plan | 1)⊠ Responsiv | ve to communication(s) filed on <u>08 J</u> | <u>uly 2002</u> . | | | | | |
| closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) \(\) Claim(s) \(\ | - / - | ···· | | | | | | |
| 4) Claim(s) 11-28 is/are pending in the application. 4a) Of the above claim(s) is/are withdrawn from consideration. 5) Claim(s) is/are allowed. 6) Claim(s) is/are rejected. 7) Claim(s) is/are objected to. 8) Claim(s) are subject to restriction and/or election requirement. Application Papers 9) The specification is objected to by the Examiner. 10) The drawing(s) filled on is/are: a accepted or b objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action. 12) The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 120 and/or 121. Attachment(s) 10 Interview Summany (PTO-413) Paper No(s) | closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. | | | | | | | |
| 4a) Of the above claim(s) is/are withdrawn from consideration. 5) □ Claim(s) is/are allowed. 6) ☒ Claim(s) is/are rejected. 7) □ Claim(s) is/are rejected. 7) □ Claim(s) are subject to restriction and/or election requirement. Application Papers 9) □ The specification is objected to by the Examiner. 10) □ The drawing(s) filed on is/are: a) □ accepted or b) □ objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) □ The proposed drawing correction filed on is: a) □ approved b) □ disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action. 12) □ The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13) □ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) □ All b) □ Some * c) □ None of: 1 □ Certified copies of the priority documents have been received. 2 □ Certified copies of the priority documents have been received in Application No application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) □ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) □ The translation of the foreign language provisional application has been received. 15) □ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1 □ Interview Summary (PTO-413) Paper No(s) □ Other: | • | | _ | | | | | |
| 5) Claim(s) is/are allowed. 6) Claim(s) is/are rejected. 7) Claim(s) is/are objected to. 8) Claim(s) is/are objected to. 8) Claim(s) are subject to restriction and/or election requirement. Application Papers 9) The specification is objected to by the Examiner. 10) The proposed frawing (s) filed on is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action. 12) The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). *See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) Notice of References Cited (PTO-892) Notice of Informal Patent Application (PTO-152) Interview Summary (PTO-413) Paper No(s) | | | | | | | | |
| 6) Claim(s) 11-28 is/are rejected. 7) Claim(s) is/are objected to. 8) Claim(s) is/are objected to. 8) Claim(s) are subject to restriction and/or election requirement. Application Papers 9) The specification is objected to by the Examiner. 10) The drawing(s) filed on is/are: a) cacepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action. 12) The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1 Notice of References Cited (PTO-892) 2 Ontice of Informal Patent Application (PTO-152) 3 Ontice of Informal Patent Application (PTO-152) 3 Ontice of Informal Patent Application (PTO-152) | • | • | | | | | | |
| 7 Claim(s) is/are objected to. 8 Claim(s) are subject to restriction and/or election requirement. Application Papers 9 The specification is objected to by the Examiner. 10 The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11 The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action. 12 The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13 Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) Interview Summary (PTO-413) Paper No(s) 21 Notice of Terfsperson's Patent Drawing Review (PTO-948) Interview Summary (PTO-013) Paper No(s) 31 Information Disclosure Statement(s) (PTO-1449) Paper No(s) 32 Notice of Informal Patent Application (PTO-152) Other: | | | | | | | | |
| 8) Claim(s) are subject to restriction and/or election requirement. Application Papers 9) The specification is objected to by the Examiner. 10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action. 12) The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) | • | | | | | | | |
| Application Papers 9) The specification is objected to by the Examiner. 10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action. 12) The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) Other: | | | r election requirement. | | | | | |
| 10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action. 12) The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1 | , ., ., | | | | | | | |
| Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). 11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action. 12) The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) All Interview Summary (PTO-413) Paper No(s) 5) Notice of Informal Patent Application (PTO-152) Notice of Informal Patent Application (PTO-152) | | | | | | | | |
| 11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action. 12) The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s) | 10) The drawing(s) filed on is/are: a) accepted or b) objected to by the Examiner. | | | | | | | |
| If approved, corrected drawings are required in reply to this Office action. 12) The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s) Notice of Informal Patent Application (PTO-152) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other: | | | | | | | | |
| 12) The oath or declaration is objected to by the Examiner. Priority under 35 U.S.C. §§ 119 and 120 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) 4) Interview Summary (PTO-413) Paper No(s) Notice of Informal Patent Application (PTO-152) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) | 11) The proposed drawing correction filed on is: a) approved b) disapproved by the Examiner. | | | | | | | |
| Priority under 35 U.S.C. §§ 119 and 120 13 | | | | | | | | |
| 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f). a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) All Interview Summary (PTO-413) Paper No(s) Notice of Informal Patent Application (PTO-152) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other: | / | | | | | | | |
| a) All b) Some * c) None of: 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other: | | | | | | | | |
| 1. Certified copies of the priority documents have been received. 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) All Interview Summary (PTO-413) Paper No(s) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other: | | | | | | | | |
| 2. Certified copies of the priority documents have been received in Application No 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) Al Interview Summary (PTO-413) Paper No(s) 5) Notice of Informal Patent Application (PTO-152) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other: | | | | | | | | |
| 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) Al Interview Summary (PTO-413) Paper No(s). 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s). 6) Other: | _ | | | | | | | |
| application from the International Bureau (PCT Rule 17.2(a)). * See the attached detailed Office action for a list of the certified copies not received. 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other: | | | | | | | | |
| a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other: | application from the International Bureau (PCT Rule 17.2(a)). | | | | | | | |
| 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. Attachment(s) 1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other: | 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application). | | | | | | | |
| 1) Notice of References Cited (PTO-892) 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other: | a) The translation of the foreign language provisional application has been received. 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121. | | | | | | | |
| 2) Notice of Draftsperson's Patent Drawing Review (PTO-948) 3) Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6) Other: | | | | | | | | |
| | 2) Notice of Draftspers | son's Patent Drawing Review (PTO-948) | 5) Notice of Informal | y (PTO-413) Paper N Patent Application (P | o(s) TO-152) | | | |

Application/Control Number: 08/992,767

Art Unit: 2814

DETAILED ACTION

Page 2

Claim Rejections - 35 USC § 103

- 1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 2. Claims 11 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwajima in view of Roberts et al., McDavid, Miller et al. and Kim et al.
- 3. With respect to claims 11, 13 and 17, Kuwajima shows that for semiconductor devices it is necessary to form different sized vias for contacts (see cover Figure and column 3, line 13 et seq.) and show that to meet requirements for material removal related to the nonuniformity of the surface, the film thickness is selected to provide complete filling of the small via and covering the sidewalls of the large via. Roberts et al. show the formation of metallized vias (see cover Figure and column 4, line 37 et seq.) where an upper metal layer is redeposited to form both a fluted upper area and a corner filling lower area where the corner filling is much less than half the thickness of the insulation layer. This technique provides improved step coverage (see abstract). The Roberts et al. technique depends upon having an upper metal layer which is redistributed into the corners of the via and is directed toward vias with a 2:1 aspect ratio (column 5, line 40). McDavid shows a technique of forming a metallization in a via (see cover Figure and column 2, line 18 et seq.) where the corner filling 13 is formed by anisotropically etching a preliminary metal layer. It would have been obvious to modify the Roberts et al. technique to form the corner filling using the McDavid method so that it is not necessary to

Application/Control Number: 08/992,767

Art Unit: 2814

Page 3

Mote that without the requirement to deal with the radius of the film, it is not necessary that the remaining portion of the fill in the large via reach to the top. Kim et al. show a method of forming metallization in a via (see cover Figure and column 4, line 8 et seq.) where the upper surface of the via is wider, which effectively reduces the aspect ratio (column 1, line 62). Note that Roberts et al. also show the fluted upper area of the via. It would have been obvious to specifically include this feature to reduce the aspect ratio and thus improve coverage. While Kuwajima does not specify the aspect ratio of the vias it would be expected that, in practice, it would be desirable to form vias without concern for the aspect ratio. Miller et al. show the formation of a metallized via (see cover Figure and column 5, line 22) for high aspect ratio holes (column 2, line 43). It would have been obvious to use the use the method shown above for the low aspect ratio holes and to use the Miller et al. technique for the high aspect ratio holes and to use the fluted upper area of the hole as shown by Kim et al. for all the holes.

- 4. With respect to claims 14, 15, 18 and 19 Roberts et al. show that the corner filling is a small fraction of the thickness of the insulation layer and could obviously accommodate any particular ratio that is desired.
- 5. With respect to claims 12 and 16, McDavid shows that the metal could be Mo or W (column 2, line 36). It would have been obvious to use a refractory metal as shown since it is known to be functional for this application.
- 6. With respect to claims 20 28, see the above rejection and note that in the formation of both large and small aspect ratio vias, it would be obvious to cease deposition of the refractory material when the high aspect ratio hole is filled to avoid producing a hump in the deposition and

Application/Control Number: 08/992,767

Art Unit: 2814

this would leave the small aspect ratio via with a refractory liner that is half the diameter of the other via. Note that upon formation of the lining for the low aspect ratio via, the anisotropic etch would leave the width of the metallization unchanged at the bottom of the via.

Response to Arguments

- 1. Applicant's arguments filed 7/8/02 have been fully considered but they are not persuasive.
- Applicant states that Kuwajima shows everything needed the other references are superfluous but each reference shows the desirability of modification of the basic reference and are thus proper.

Conclusion

3. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Art Unit: 2814

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas A Wille whose telephone number is (703) 308-4949. The examiner can normally be reached on M-F (6:15-3:45).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

DAW Ode August 18, 2002

PHAT X. CAO PRIMARY EXAMINER